

**Class 2 Permit Modification Request**

**Revise PCB Prohibition**

**Waste Isolation Pilot Plant  
Carlsbad, New Mexico**

**WIPP HWFP #NM4890139088-TSDF**

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## **Acronyms and Abbreviations**

CARD	Citizens Against Radioactive Dumping
CCNS	Concerned Citizens for Nuclear Safety
CFR	Code of Federal Regulations
CTAC	Carlsbad Technical Assistance Contractor
EPA	United States Environmental Protection Agency
EEG	Environmental Evaluation Group
HWDU	Hazardous Waste Disposal Unit
HWFP	Hazardous Waste Facility Permit
LANL	Los Alamos National Laboratories
LDR	Land Disposal Restriction
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PCB	Polychlorinated Biphenyl
PMR	Permit Modification Request
RCRA	Resource Conservation and Recovery Act
RSI	Institute for Regulatory Science
SNL	Sandia National Laboratories
TRU	Transuranic
TSCA	Toxic Substances Control Act
TSDf	Treatment, Storage and Disposal Facility
WIPP	Waste Isolation Pilot Plant
WTS	Washington TRU Solutions

## Overview of the Permit Modification Request

This document contains one Class 2 Permit Modification Request (**PMR**) for the Hazardous Waste Facility Permit (**HWFP**) at the Waste Isolation Pilot Plant (**WIPP**), Permit Number NM4890139088-TSDF hereinafter referred to as the WIPP HWFP.

This PMR is being submitted by the U.S. Department of Energy (**DOE**), Carlsbad Field Office (**CBFO**) and Washington TRU Solutions LLC (**WTS**), collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1 (20.4.1.900 New Mexico Administrative Code (**NMAC**) incorporating 40 Code of Federal Regulations (**CFR**) §270.42(b)). The PMR in this document is necessary to allow the disposal of Transuranic (**TRU**) and TRU-mixed wastes containing polychlorinated biphenyls (**PCBs**) at WIPP. These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The requested modification to the WIPP HWFP and related supporting documents are provided in this PMR. The proposed modification to the text of the WIPP HWFP has been identified using a double underline and a revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text. The following information specifically addresses how compliance has been achieved with the WIPP HWFP requirement, Permit Condition I.B.1 for submission of this Class 2 PMR.

1. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(i)), requires the applicant to describe the exact change to be made to the permit conditions and supporting documents referenced by the permit.**

This modification will revise the prohibition for the management, storage, and disposal of TRU and TRU mixed wastes containing PCBs equal to or greater than 50 parts per million (**ppm**) at WIPP and remove the associated analytical requirements.

The proposed changes to the WIPP HWFP text are presented in Attachment B of this PMR.

2. **20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(ii)), requires the applicant to identify that the modification is a Class 2 modification.**

The proposed modification is classified as a Class 2 permit modification because it is considered an *other change* to waste sampling and analysis methods in accordance with 20.4.1.900 NMAC incorporating 40 CFR §270.42 Appendix I, Item B.1.d. This waste will meet the TSDF-WAC requirements and no changes are necessary to the HWFP regarding container management, storage, or disposal.

**3. 20.4.1.900 NMAC (incorporating 40 CFR §270.42(b)(1)(iii)), requires the applicant to explain why the modification is needed.**

This modification is required to change the HWFP prohibition for disposal of TRU mixed waste containing PCBs greater than 50 ppm at the WIPP to allow disposal of PCB waste presumed to be greater than 500 ppm and to remove associated analytical requirements. The change is needed because:

- PCBs are regulated under Toxic Substances Control Act (TSCA) with specific disposal options/requirements
- There are no other disposal options for PCB/TRU waste in the DOE complex
- PCB contaminated waste is compatible with TRU and TRU mixed waste
- Approval was sought and obtained on May 15, 2003 from the EPA to authorize the WIPP for disposal of TRU and TRU-mixed waste containing PCBs pursuant to 40 CFR § 761.75
- PCBs are not regulated under 40 CFR Part 264.

The EPA has determined that the WIPP meets the requirements for a disposal facility for PCBs and this PMR seeks modification of the HWFP to allow storage and disposal of TRU mixed waste containing PCBs greater than 500 ppm.

The current HWFP in Section II.C, General Waste Analysis, (Permit Condition II.C.3.f.) prohibits the disposal of TRU mixed wastes containing PCBs equal to or greater than 50 ppm at WIPP and delineates analytical methods/requirements for ensuring compliance with the prohibition. The disposal of PCB wastes is regulated by TSCA under 40 CFR Part 761. The Environmental Protection Agency (**EPA**) Region 6 approved the WIPP for the disposal of TRU and TRU mixed wastes containing PCBs pursuant to 40 CFR 761.75 (Chemical Waste Landfill Authorization) in a May 15, 2003 letter to the CBFO. The approval process included a 45 day public comment period (December 10, 2002 through January 24, 2003). In addition significant public participation was initiated by the DOE as follows:

1. **August 7, 2001:** WIPP Quarterly Meeting in Santa Fe. A presentation entitled; "Modification Status" discussed a Hazardous Waste Facility Permit modification for PCBs.

**WIPP representatives:** CBFO and Washington TRU Solutions (**WTS**)

**Stakeholders:** Environmental Evaluation Group (**EEG**), NM Attorney General's Office, NM Energy, Minerals, and Natural Resources Department, NMED, Concerned Citizens for Nuclear Safety (**CCNS**), and Citizens Against Radioactive Dumping (**CARD**).

2. **January 10, 2002:** "Information Exchange Workshop Regarding the WIPP Initial Report for PCB Disposal Authorization" held in Santa Fe, to discuss the proposed PCB application and the peer review process to be conducted in February 2002. Other topics included:
  - a. Peer selection
  - b. Questions used for peer review criteria
  - c. Peer review meeting logistics – place, meeting time, etc.
  - d. Definition of stakeholder

e. General information regarding PCBs

**WIPP representatives:** Institute for Regulatory Science (**RSI**)

**Stakeholders:** CCNS, Nuclear Watch of NM, CARD, EEG, and Santa Fe Prep school. Note, invitees included organizations that had participated in WIPP public meetings.

3. **February 6-7, 2002:** CBFO/EPA Working Meeting in Carlsbad, NM. The following two presentations were made:
- a. PCB Disposal Peer Review
  - b. TSCA/PCB Submittal Status

**WIPP representatives:** CBFO, Carlsbad Technical Assistance Contractor (**CTAC**), WTS, Sandia National Laboratories (**SNL**), Los Alamos National Laboratories (**LANL**), and RSI

**Stakeholders:** EEG

4. **February 26, 2002:** PCB Peer Review conducted in Albuquerque, NM by RSI for the CBFO. The Peer Review used criteria developed by RSI. The presentations were structured around the 12 criteria for "Initial Report" per 40 CFR § 761.75(c). The Peer Review was conducted to determine if the PCB application (Initial Report):
- a. Proved to be consistent with established scientific and engineering principles and standards
  - b. Provided evidence that there is no credible mechanism for migration of PCBs from WIPP
  - c. Addressed compatibility of PCB-containing TRU wastes with other waste forms authorized for disposal at WIPP
  - d. Demonstrated that there is no significant impact to the way wastes are handled at WIPP due to receipt of PCB-containing TRU wastes
  - e. Addressed the safety of WIPP facility personnel and the adequacy of their training to TSCA compliance requirements
  - f. Addressed emergency response involving PCB wastes and the adequacy of the WIPP Waste Handling Building flooring materials to a spill of PCB-containing TRU wastes
  - g. Provided a technically sound basis for the three requested waivers.

**WIPP representatives:** RSI, Peer Review panel, WTS, SNL, CTAC, and CBFO.

**Stakeholders:** EEG and NM Attorney General's Office. Note, invitees included those parties that had participated in WIPP public meetings.

5. **April 16, 2002:** WIPP Quarterly Meeting in Carlsbad, NM. A presentation entitled; "CBFO Plans for Future HWFP Modification Requests" discussed actions required prior to PCB disposal. One slide mentioned that a Class 1\* permit modification would be submitted following EPA issuance of the TSCA authorization.

**WIPP representatives:** CBFO, WTS, CTAC, LANL, and SNL

**Stakeholders:** EEG, NMED, NM Department of Public Safety, NM Attorney General's Office, and private citizens

In granting this approval pursuant to 40 CFR §761.75, the EPA Region 6 considered many factors including but not limited to compatibility of PCBs with other waste and backfill material, contingency planning, procedures to prevent hazards, record keeping, and waste characterization as indicated in the Conditions of Approval and the "Waste Isolation Pilot Plant Initial Report for PCB Disposal Authorization" submitted by the Permittees to EPA Region 6. The EPA determined in their May 15, 2003 letter "...that the operation of this facility in accordance with the enclosed "Conditions of Approval" will not present an unreasonable risk of injury from PCBs to human health and the environment." Therefore, the Permittees are seeking to change the prohibition for the disposal of TRU mixed wastes containing PCBs at WIPP and to remove the associated analytical requirements.

The associated analytical requirements for PCBs were included in the HWFP to demonstrate compliance with the prohibition on waste containing PCBs equal to or greater than 50 ppm. This assertion is supported by the statement in the HWFP Application, Section C-1b indicating that waste streams known to contain PCBs "*are required to be screened to assure PCB levels are below 50 ppm.*" In addition, footnotes to analytical tables in the HWFP indicate that PCB analysis only applies to those wastes known to contain PCBs. TSCA regulations indicate requirements for analysis for PCBs which the generator sites shall use for determining PCB concentrations. The removal of the PCB analytical requirements from the HWFP does not impact analytical requirements in the HWFP not related to determining PCB concentrations.

**4. 20.4.1.900 NMAC (incorporating 40 CFR §270.42 (b)(1)(iv)), requires the applicant to provide the applicable information required by 40 CFR §§270.13 through 270.21, 270.62 and 270.63.**

The regulatory crosswalk describes those portions of the WIPP HWFP that are affected by this PMR. Where applicable, regulatory citations in this modification reference Title 20, Chapter 4, Part 1, NMAC, revised June 14, 2000, incorporating the CFR, Title 40 (40 CFR Parts 264 and 270). 40 CFR §§270.16 through 270.22, 270.62, 270.63 and 270.66 are not applicable at WIPP. Consequently, they are not listed in the regulatory crosswalk table. 40 CFR §270.23 is applicable to the WIPP Hazardous Waste Disposal Units (**HWDUs**). This modification does not impact the conditions associated with the HWDUs.

**5. 20.4.1.900 NMAC (incorporating 40 CFR §270.11(d)(1) and 40 CFR §270.30(k)), requires any person signing under paragraph a and b must certify the document in accordance with 20.4.1.900 NMAC.**

The transmittal letter for this PMR contains the signed certification statement in accordance with Module I.F of the WIPP HWFP.

## Regulatory Crosswalk

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.13		Contents of Part A permit application	Attachment O, Part A		✓
§270.14(b)(1)		General facility description	Attachment A		✓
§270.14(b)(2)	§264.13(a)	Chemical and physical analyses	Attachment B	✓	
§270.14(b)(3)	§264.13(b)	Development and implementation of waste analysis plan	Attachment B	✓	
	§264.13(c)	Off-site waste analysis requirements	Attachment B		✓
§270.14(b)(4)	§264.14(a-c)	Security procedures and equipment	Attachment C		✓
§270.14(b)(5)	§264.15(a-d)	General inspection requirements	Attachment D		✓
	§264.174	Container inspections	Attachment D		✓
§270.23(a)(2)	§264.602	Miscellaneous units inspections	Attachment D		✓
§270.14(b)(6)		Request for waiver from preparedness and prevention requirements of Part 264 Subpart C	NA		
§270.14(b)(7)	264 Subpart D	Contingency plan requirements	Attachment F		✓
	§264.51	Contingency plan design and implementation	Attachment F		✓
	§264.52 (a) & (c-f)	Contingency plan content	Attachment F		✓
	§264.53	Contingency plan copies	Attachment F		✓
	§264.54	Contingency plan amendment	Attachment F		✓
	§264.55	Emergency coordinator	Attachment F		✓
	§264.56	Emergency procedures	Attachment F		✓
§270.14(b)(8)		Description of procedures, structures or equipment for:	Attachment E		✓
§270.14(b)(8) (i)		Prevention of hazards in unloading operations (e.g., ramps and special forklifts)	Attachment E		✓
§270.14(b)(8) (ii)		Runoff or flood prevention (e.g., berms, trenches, and dikes)	Attachment E		✓
§270.14(b)(8) (iii)		Prevention of contamination of water supplies	Attachment E		✓
§270.14(b)(8) (iv)		Mitigation of effects of equipment failure and power outages	Attachment E		✓
§270.14(b)(8) (v)		Prevention of undue exposure of personnel (e.g., personal protective equipment)	Attachment E		✓
§270.14(b)(8) (vi) §270.23(a)(2)	§264.601	Prevention of releases to the atmosphere	Module II Module IV Attachment M2 Attachment N		✓
	264 Subpart C	Preparedness and Prevention	Attachment E		✓
	§264.31	Design and operation of facility	Attachment E		✓
	§264.32	Required equipment	Attachment E Attachment F		✓
	§264.33	Testing and maintenance of equipment	Attachment D		✓
	§264.34	Access to communication/alarm system	Attachment E		✓



Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
	§264.35	Required aisle space	Attachment E		✓
	§264.37	Arrangements with local authorities	Attachment F		✓
§270.14(b)(9)	§264.17(a-c)	Prevention of accidental ignition or reaction of ignitable, reactive, or incompatible wastes	Attachment E		✓
§270.14(b)(10)		Traffic pattern, volume, and controls, for example: Identification of turn lanes Identification of traffic/stacking lanes, if appropriate Description of access road surface Description of access road load-bearing capacity Identification of traffic controls	Attachment G		✓
§270.14(b)(11)(i) and (ii)	§264.18(a)	Seismic standard applicability and requirements	Part B, Rev. 6 Chapter B		✓
§270.14(b)(11)(iii-v)	§264.18(b)	100-year floodplain standard	Part B, Rev. 6 Chapter B		✓
	§264.18(c)	Other location standards	Part B, Rev. 6 Chapter B		✓
§270.14(b)(12)	§264.16(a-e)	Personnel training program	Permit Module II Attachment H		✓
§270.14(b)(13)	264 Subpart G	Closure and post-closure plans	Attachment I & J		✓
§270.14(b)(13)	§264.111	Closure performance standard	Attachment I		✓
§270.14(b)(13)	§264.112(a), (b)	Written content of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(c)	Amendment of closure plan	Attachment I		✓
§270.14(b)(13)	§264.112(d)	Notification of partial and final closure	Attachment I		✓
§270.14(b)(13)	§264.112(e)	Removal of wastes and decontamination/dismantling of equipment	Attachment I		✓
§270.14(b)(13)	§264.113	Time allowed for closure	Attachment I		✓
§270.14(b)(13)	§264.114	Disposal/decontamination	Attachment I		✓
§270.14(b)(13)	§264.115	Certification of closure	Attachment I		✓
§270.14(b)(13)	§264.116	Survey plat	Attachment I		✓
§270.14(b)(13)	§264.117	Post-closure care and use of property	Attachment J		✓
§270.14(b)(13)	§264.118	Post-closure plan; amendment of plan	Attachment J		✓
§270.14(b)(13)	§264.178	Closure/containers	Attachment I		✓
§270.14(b)(13)	§264.601	Environmental performance standards-Miscellaneous units	Attachment I		✓
§270.14(b)(13)	§264.603	Post-closure care	Attachment I		✓
§270.14(b)(14)	§264.119	Post-closure notices	Attachment J		✓
§270.14(b)(15)	§264.142	Closure cost estimate	NA		✓
	§264.143	Financial assurance	NA		✓
§270.14(b)(16)	§264.144	Post-closure cost estimate	NA		✓
	§264.145	Post-closure care financial assurance	NA		✓
§270.14(b)(17)	§264.147	Liability insurance	NA		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
§270.14(b)(18)	§264.149-150	Proof of financial coverage	NA		✓
§270.14(b)(19)(i), (vi), (vii), and (x)		Topographic map requirements Map scale and date Map orientation Legal boundaries Buildings Treatment, storage, and disposal operations Run-on/run-off control systems Fire control facilities	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(ii)	§264.18(b)	100-year floodplain	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iii)		Surface waters	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(iv)		Surrounding Land use	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(v)		Wind rose	Attachment O Part A Part B, Rev. 6 Chapter B, E		✓
§270.14(b)(19)(viii)	§264.14(b)	Access controls	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(ix)		Injection and withdrawal wells	Attachment O Part A Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xi)		Drainage on flood control barriers	Part B, Rev. 6 Chapter B, E, F		✓
§270.14(b)(19)(xii)		Location of operational units	Part B, Rev. 6 Chapter B		✓
§270.14(b)(20)		Other federal laws Wild and Scenic Rivers Act National Historic Preservation Act Endangered Species Act Coastal Zone Management Act Fish and Wildlife Coordination Act Executive Orders	Part B, Rev. 6 Chapter K		✓
§270.15	§264 Subpart I	Containers	Attachment M1		✓
	§264.171	Condition of containers	Attachment M1		✓
	§264.172	Compatibility of waste with containers	Attachment M1		✓
	§264.173	Management of containers	Attachment M1		✓
	§264.174	Inspections	Attachment D Attachment M1		✓
§270.15(a)	§264.175	Containment systems	Attachment M1		✓
§270.15(c)	§264.176	Special requirements for ignitable or reactive waste	Attachment E Permit Module II		✓
§270.15(d)	§264.177	Special requirements for incompatible wastes	Attachment E Permit Module II		✓

Regulatory Citation(s) 20.4.1.900 NMAC (incorporating 40 CFR Part 270)	Regulatory Citation(s) 20.4.1.500 NMAC (incorporating 40 CFR Part 264)	Description of Requirement	Added or Clarified Information		
			Section of the HWFP or Permit Application	Yes	No
	§264.178	Closure	Attachment I		✓
§270.15(e)	§264.179	Air emission standards	Attachment E Attachment N		✓
§270.23	264 Subpart X	Miscellaneous units	Attachment M2		✓
§270.23(a)	§264.601	Detailed unit description	Attachment M2		✓
§270.23(b)	§264.601	Hydrologic, geologic, and meteorologic assessments	Permit Module IV Attachment M2		✓
§270.23(c)	§264.601	Potential exposure pathways	Permit Module IV Attachment M2 Attachment N		✓
§270.23(d)		Demonstration of treatment effectiveness	Permit Module IV Attachment M2 Attachment N		✓
	§264.602	Monitoring, analysis, inspection, response, reporting, and corrective action	Permit Module IV Attachment M2 Attachment N		✓
	§264.603	Post-closure care	Attachment J Attachment J1		✓
	264 Subpart E	Manifest system, record keeping, and reporting	Permit Module I Permit Module II Permit Module IV Attachment B		✓

**Attachment A**  
**Table of Changes**

## Table of Changes

Affected Permit Section	Explanation of Changes
a.1. Module II - Table of Contents	The Table of Contents has been revised to reflect the change in the prohibition on the storage/disposal of TRU and TRU-Mixed Wastes containing PCBs at WIPP.
a.2. II.C.3.f.	This section has been revised to reflect the change in the prohibition on the storage/disposal of TRU and TRU-Mixed Wastes containing PCBs at WIPP. The new language prohibits PCB containing wastes that are not authorized by the EPA.
b.1. B-1c	This section has been revised to reflect the change in the prohibition on the storage/disposal of TRU and TRU-Mixed Wastes containing PCBs at WIPP. The new language prohibits PCB containing wastes that are not authorized by the EPA.
b.2. B-3a(2)	The text has been revised to remove the reference to sampling and analysis for PCBs.
b.3. B-3d(1)(a)	The text has been revised to remove the reference to sampling and analysis for PCBs.
b.4. Table B-1	The text has been revised to remove the reference to sampling and analysis for PCBs.
b.5. Table B-4	The text has been revised to remove the reference to sampling and analysis for PCBs.
b.6. Table B-8	The text has been revised to remove the reference to sampling and analysis for PCBs.
c.1. B1-2a(2)	The text has been revised to remove the reference to sampling and analysis for PCBs.
c.2. Table B1-4	The text has been revised to remove the reference to sampling and analysis for PCBs.
d.1. Table B3-6	The text has been revised to remove the reference to sampling and analysis for PCBs.
e.1. Table B6-1	This section has been revised to reflect the change in the prohibition on the storage/disposal of TRU and TRU-Mixed Wastes containing PCBs at WIPP. The new language prohibits PCB containing wastes that are not authorized by the EPA.
e.2. Table B6-2	The text has been revised to remove the reference to sampling and analysis for PCBs.

**Attachment B**  
**Proposed Revised Permit Text**

## Proposed Revised Permit Text:

### a. 1. TOC MODULE II - GENERAL FACILITY CONDITIONS

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II.C.1.b. Waste characterization sampling and analytical methods	
II.C.1.c. Statistical methods used in sampling and analysis	
II.C.1.d. Quality assurance objectives	
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II.C.3.c. Non-mixed hazardous wastes	
II.C.3.d. Chemical incompatibility	
II.C.3.e. Explosives and compressed gases	
II.C.3.f. <u>PCB concentrations - waste</u>	
II.C.3.g. Ignitable, corrosive, and reactive wastes	
II.C.3.h. Remote-handled transuranic waste	
II.C.3.i. Headspace gas sampling and analysis	
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II.C.3.k. Waste stream profiles	
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### a.2. II.C.3.f.

PCB waste concentrations - wastes with polychlorinated biphenyls (**PCBs**) concentrations equal to or greater than 50 parts per million not authorized under an EPA PCB waste disposal authorization are not acceptable at WIPP.

### b.1. B-1c Waste Prohibited at the WIPP Facility

The following TRU mixed waste are prohibited at the WIPP facility:

- liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container (e.g., 55 gallon drum or standard waste box) may not exceed 1 percent volume of that container)
- non-radionuclide pyrophoric materials, such as elemental potassium
- hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)
- wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes
- wastes containing explosives or compressed gases
- wastes with polychlorinated biphenyls (**PCBs**) not authorized under an EPA disposal authorization concentrations equal to or greater than 50 parts per million
- wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)
- RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)
- any waste container that does not have VOC concentration values reported for the headspace
- any waste container which has not undergone either radiographic or visual examination
- any waste container from a waste stream which has not been preceded by an appropriate, certified WSPF (see Section B-1d)

#### b.2. B-3a(2) Homogeneous Waste Sampling and Analysis

Sampling of homogeneous and soil/gravel wastes shall result in the collection of a sample that is used to confirm hazardous waste code assignment by acceptable knowledge. Sampling is accomplished through core or other EPA approved sampling, which is described in Permit Attachment B1. For those waste streams defined as Summary Category Groups S3000 or S4000 on page B-3, debris that may also be present within these wastes need not be sampled. The waste containers for sampling and analysis are to be selected randomly from the population of containers for the waste stream. The random selection methodology is specified in Permit Attachment B2.

Totals or TCLP analyses for ~~PCBs~~, VOCs, SVOCs, and RCRA-regulated metals are used to determine waste parameters in soils/gravels and solids that may be important to the performance within the disposal system (Tables B-4 and B-5). To determine if a waste exhibits a toxicity characteristic for compounds specified in 20.4.1.200 NMAC (incorporating 40 CFR §261, Subpart C), TCLP may be used instead of total analyses. The generator will use the results from these analyses to determine if a waste exhibits a toxicity characteristic. The mean



concentration of toxicity characteristic contaminants are calculated for each waste stream such that it can be reported with an upper 90 percent confidence limit (**UCL<sub>90</sub>**). The UCL<sub>90</sub> values for the mean measured contaminant concentrations in a waste stream will be compared to the specified regulatory levels in 20.4.1.200 NMAC (incorporating 40 CFR 261 Subpart C), expressed as total/TCLP values, to determine if the waste stream exhibits a toxicity characteristic. A comparison of total analyses and TCLP analyses is presented in Appendix C3 of the WIPP RCRA Part B Permit Application (DOE, 1997), and a discussion of the UCL<sub>90</sub> is included in Permit Attachment B2. If toxicity characteristic (**TC**) wastes are identified, these will be compared to those determined by acceptable knowledge and TC waste codes will be revised, as warranted. Refer to Permit Attachment B4 for additional clarification regarding hazardous waste code assignment and homogeneous solid and soil/gravel analytical results.

b.3. B-3d(1)(a) Sampling of Newly Generated Homogeneous Solids

Newly generated mixed waste streams of homogeneous solids will be randomly sampled a minimum of once per year for total PCBs, VOCs, SVOCs and metals. An initial ten-sample set, however, will be collected to develop the baseline control chart. Sampling frequency of once per year is only allowed if a process has operated within procedurally established bounds without any process changes or fluctuations which would result in either a new waste stream or the identification of a new hazardous waste constituent in that waste stream. Otherwise, the waste shall be considered as process batches and each batch will undergo sampling and analysis. Process changes and process fluctuations will be determined using statistical process control charting techniques; these techniques require the ten-sample baseline and historical data for determining limits for indicator species and subsequent periodic sampling to assess process behavior relative to historical limits. If the limits are exceeded, the waste stream shall be recharacterized, and the characterization shall be performed according to procedures required for retrievably stored waste (i.e., waste sampling frequency will be increased). The process behind this control charting technique is described in Permit Attachment B2.

b.4. Table B-1 Summary of Hazardous Waste Characterization Requirements for Transuranic Mixed Waste <sup>a</sup>

**TABLE B-1**  
**SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS**  
**FOR TRANSURANIC MIXED WASTE <sup>a</sup>**

Parameter	Techniques and Procedure
<b><u>Physical Waste Form</u></b>  <u>Summary</u> <u>Category Names</u> S3000 Homogeneous Solid S4000 Soil/Gravel S5000 Debris Wastes	<b><u>Waste Inspection Procedures</u></b>  Radiography Visual Examination (Permit Attachment B1-3)
<b><u>Headspace Gases</u></b>  <b><u>Volatile Organic Compounds</u></b>  Benzene <u>Alcohols and Ketones</u> Bromoform                  Acetone Carbon tetrachloride      Butanol Chlorobenzene              Methanol Chloroform                  Methyl ethyl ketone 1,1-Dichloroethane        Methyl isobutyl ketone 1,2-Dichloroethane 1,1-Dichloroethylene (cis)-1,2-Dichloroethylene (trans)-1,2-Dichloroethylene Ethyl benzene Ethyl ether Formaldehyde <sup>b</sup> Hydrazine <sup>c</sup> Methylene chloride 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene 1,1,2-Trichloro-1,2,2-trifluoroethane Xylenes	<b><u>Gas Analysis</u></b>  Gas Chromatography /Mass Spectroscopy (GC/MS), EPA TO-14 or modified SW-846 8240/8260 ( Permit Attachment B3 )  GC/Flame Ionization Detector (FID), for alcohols and ketones, SW-846 8015 ( Permit Attachment B3 )  Fourier Transform Infrared Spectroscopy (FTIRS), SW-846

**TABLE B-1**  
**SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS**  
**FOR TRANSURANIC MIXED WASTE <sup>a</sup>**

Parameter	Techniques and Procedure
<b><u>Total Volatile Organic Compounds</u></b> Isobutanol Acetone                      Methanol Benzene                     Methyl ethyl ketone Bromoform                Methylene chloride Butanol                     Pyridine <sup>d</sup> Carbon disulfide        1,1,2,2-Tetrachloroethane Carbon tetrachloride    Tetrachloroethylene Chlorobenzene           Toluene Chloroform                1,1,2-Trichloro-1,2,2-trifluoroethane 1,4-Dichlorobenzene <sup>d</sup> Trichlorofluoromethane 1,2-Dichlorobenzene <sup>d</sup> 1,1,1-Trichloroethane 1,2-Dichloroethane      1,1,2-Trichloroethane 1,1-Dichloroethylene   Trichloroethylene Ethyl benzene            Vinyl chloride Ethyl ether                Xylenes Formaldehyde <sup>b</sup> (trans)-1,2-Dichloroethylene Hydrazine <sup>c</sup>	<b><u>Total Volatile Organic Compound Analysis</u></b>  TCLP, SW-846 1311 GC/MS, SW-846 8260 or 8240 GC/FID, SW-846 8015 ( Permit Attachment B3 )  Acceptable Knowledge for Summary Category S5000 (Debris Wastes)
<b><u>Total Semivolatile Organic Compounds</u></b> Cresols 1,4-Dichlorobenzene <sup>e</sup> 1,2-Dichlorobenzene <sup>e</sup> 2,4-Dinitrophenol 2,4-Dinitrotoluene Hexachlorobenzene Hexachloroethane Nitrobenzene Polychlorinated biphenyls Pentachlorophenol Pyridine <sup>e</sup>	<b><u>Total Semivolatile Organic Compound Analysis</u></b>  TCLP, SW-846 1311 GC/MS, SW-846 8250 or 8270 <del>GC/ECD for PCBs, SW-846 8082-</del> ( Permit Attachment B3 )  Acceptable Knowledge for Summary Category S5000 (Debris Wastes)

**TABLE B-1**  
**SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS**  
**FOR TRANSURANIC MIXED WASTE <sup>a</sup>**

Parameter		Techniques and Procedure
<b><u>Total Metals</u></b>		<b><u>Total Metals Analysis</u></b>
Antimony	Mercury	TCLP, SW-846 1311 ICP- MS, SW-846 6020 , ICP Emission Spectroscopy, SW-846 6010 Atomic Absorption Spectroscopy , SW-846 7000 ( Permit Attachment B3 )  Acceptable Knowledge for Summary Category S5000 (Debris Wastes)
Arsenic	Nickel	
Barium	Selenium	
Beryllium	Silver	
Cadmium	Thallium	
Chromium	Vanadium	
Lead	Zinc	

<sup>a</sup> Permit Attachment B

<sup>b</sup> Required only for homogeneous solids and soil/gravel waste from Los Alamos National Laboratory and Savannah River Site.

<sup>c</sup> Required only for homogeneous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site.

<sup>d</sup> Can also be analyzed as a semi-volatile organic compound.

<sup>e</sup> Can also be analyzed as a volatile organic compound.

b.5. Table B-4 Required Organic Analyses and Test Methods Organized by Organic Analytical Groups

**TABLE B-4  
REQUIRED ORGANIC ANALYSES AND TEST METHODS  
ORGANIZED BY ORGANIC ANALYTICAL GROUPS**

Organic Analytical Group	Required Organic Analyses	EPA Specified Analytical Method <sup>a,ed</sup>
Nonhalogenated Volatile Organic Compounds (VOCs)	Acetone Benzene n-Butanol Carbon disulfide Ethyl benzene Ethyl ether Formaldehyde Hydrazine <sup>b</sup> Isobutanol Methanol Methyl ethyl ketone Toluene Xylenes	8015 8240 8260
Halogenated VOCs	Bromoform Carbon tetrachloride Chlorobenzene Chloroform 1,2-Dichloroethane 1,1-Dichloroethylene (trans)-1,2-Dichloroethylene Methylene chloride 1,1,2,2-Tetrachloroethane Tetrachloroethylene 1,1,2-Trichloroethane 1,1,1-Trichloroethane Trichloroethylene Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-trifluoroethane Vinyl Chloride	8015 8240 8260
Semivolatile Organic Compounds (SVOCs)	Cresols (o, m, p) 1,2-Dichlorobenzene <sup>c</sup> 1,4-Dichlorobenzene <sup>c</sup> 2,4-Dinitrophenol 2,4-Dinitrotoluene Hexachlorobenzene Hexachloroethane Nitrobenzene <del>Polychlorinated biphenyls (PCB)<sup>d</sup></del> Pentachlorophenol Pyridine <sup>e</sup>	8250 8270 8082 (for PCBs only)

<sup>a</sup> U.S. Environmental Protection Agency (EPA), 1996, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Third Edition.

<sup>b</sup> Generator/Storage Sites will have to develop an analytical method for hydrazine. This method will be submitted to the Permittees for approval.

<sup>c</sup> These compounds may also be analyzed as VOCs by SW-846 Methods 8240 and 8260.

<sup>d</sup> ~~Transformer oils containing PCBs have been identified in a limited number of waste streams included in the organic sludges waste matrix code. Therefore, only waste streams included in the solidified organics final waste form shall be analyzed for PCBs.~~

<sup>e</sup> TCLP (SW-846 1311) may be used to determine if compounds in 20.4.1.200 NMAC (incorporating 40 CFR 261, Subpart C) exhibit a toxicity characteristic.

b.6. Table B-8 WIPP Waste Information System Data Fields

**TABLE B-8**  
**WIPP WASTE INFORMATION SYSTEM DATA FIELDS<sup>a</sup>**

Characterization Module Data Fields <sup>b</sup>	
Container ID <sup>c</sup>	Total VOC Sample Date
Generator EPA ID	Total VOC Analysis Date
Generator Address	Total VOC Analyte Name <sup>d</sup>
Generator Name	Total VOC Analyte Concentration <sup>d</sup>
Generator Contact	Total Metal Sample Date
Hazardous Code	Total Metal Analysis Date
Headspace Gas Sample Date	Total Metal Analyte Name <sup>d</sup>
Headspace Gas Analysis Date	Total Metal Analyte Concentration <sup>d</sup>
Headspace Gas Analyte <sup>d</sup>	Semi-VOC Sample Date
Headspace Gas Concentration <sup>d</sup>	Semi-VOC Analysis Date
Headspace Gas Char. Method <sup>d</sup>	Semi-VOC Analyte Name <sup>d</sup>
Total VOC Char. Method <sup>d</sup>	Semi-VOC Concentration <sup>d</sup>
Total Metals Char. Method <sup>d</sup>	Transporter EPA ID
Total Semi-VOC Char. Method <sup>d</sup>	Transporter Name
Item Description Code	Visual Exam Container <sup>e</sup>
Haz. Manifest Number	Waste Material Parameter <sup>d</sup>
NDE Complete <sup>e</sup>	Waste Material Weight <sup>d</sup>
<del>PCB Concentration</del>	Waste Matrix Code
	Waste Matrix Code Group
	Waste Stream Profile Number
Certification Module Data Fields	
Container ID <sup>c</sup>	Handling Code
Container type	
Container Weight	
Contact Dose Rate	
Container Certification date	
Container Closure Date	
Transportation Data Module	
Contact Handled Package Number	Ship Date
Assembly Number <sup>f</sup>	Receive Date
Container IDs <sup>c,d</sup>	
ICV Closure Date	
Disposal Module Data	
Container ID <sup>c</sup>	
Disposal Date	
Disposal Location	

<sup>a</sup> This is not a complete list of the WWIS data fields.

<sup>b</sup> Some of the fields required for characterization are also required for certification and/or transportation.

<sup>c</sup> Container ID is the main relational field in the WWIS Database.

<sup>d</sup> This is a multiple occurring field for each analyte, nuclide, etc.

<sup>e</sup> These are logical fields requiring only a yes/no.

<sup>f</sup> Required for 7-packs of 55-gal drums, 4-packs of 85-gal drums, or 3-packs of 100-gal drums to tie all of the drums in that assembly together. This facilitates the identification of waste containers in a shipment without need to breakup the assembly.

c.1. B1-2a(2) Sample Collection

Sampling of cores shall be conducted in accordance with the following requirements:

- Sampling shall be conducted as soon as possible after core collection. If a substantial delay (i.e., more than 60 minutes) is expected between core collection and sampling, the core shall remain in the liner and the liner shall be capped at each end. If the liner containing the core is not extruded from the coring tool and capped, then two alternatives are permissible: 1) the liner shall be left in the coring tool and the coring tool shall be capped at each end, or 2) the coring tool shall remain in the waste container with the air-lock mechanism attached.

- Samples of homogenous solids and soil/gravel for VOC analyses shall be collected prior to extruding the core from the liner. These samples may be collected by collecting a single sample from the representative subsection of the core, or three sub-samples may be collected from the vertical core to form a single 15-gram composite sample. Smaller sample sizes may be used if method PRQL requirements are met for all analytes. The sampling locations shall be randomly selected. If a single sample is used, the representative subsection is chosen by randomly selecting a location along the portion of the core (i.e. core length). If the three sub-sample method is used, the sampling locations shall be randomly selected within three equal-length subsections of the core along the long axis of the liner and access to the waste shall be gained by making a perpendicular cut through the liner and the core. The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. A sampling device such as the metal coring cylinder described in EPA's SW-846 Manual (1996), or equivalent, shall be immediately used to collect the sample once the core has been exposed to air. Immediately after sample collection, the sample shall be extruded into 40-ml volatile organics analysis (**VOA**) vials (or other containers specified in appropriate SW-846 methods), the top rim of the vial visually inspected and wiped clean of any waste residue, and the vial cap secured. Sample handling requirements are outlined in Table B1-4. Additional guidance for this type of sampling can be found in SW-846 (EPA 1996).

- Samples of the homogenous solids and soil/gravel for semi-volatile organic compound, ~~polychlorinated biphenyls~~, and metals analyses shall be collected. These samples may be collected from the same sub-sample locations and in the same manner as the sample collected for VOC analysis, or they may be collected by splitting or compositing the representative subsection of the core. The representative subsection is chosen by randomly selecting a location along

the portion of the core (i.e. core length). The Permittees shall require sites to develop documented procedures to select, and record the selection, of random sampling locations. True random sampling involves the proper use of random numbers for identifying sampling locations. The procedures used to select the random sampling locations will be subject to review as part of annual audits by the Permittees. Guidance for splitting and compositing solid materials can be found in SW-846 (EPA 1996). All surfaces of the sampling tools that have the potential to come into contact with the sample shall be constructed of materials unlikely to affect the composition or concentrations of target analytes in the waste (e.g., Teflon®). In addition, all surfaces that have the potential to come into contact with core sample media shall either be disposed or decontaminated according to the procedures found in Section B1-2(b). Sample sizes and handling requirements are outlined in Table B1-4.



c.2. Table B1-4 Sample Handling Requirements for Homogeneous Solids and Soil/Gravel

**TABLE B1-4  
SAMPLE HANDLING REQUIREMENTS FOR HOMOGENEOUS  
SOLIDS AND SOIL/GRAVEL**

Parameter	Suggested Quantity <sup>a</sup>	Required Preservative	Suggested Container	Maximum Holding Time <sup>b</sup>
VOCs	15 grams	Cool to 4°C	Glass Vial <sup>c</sup>	14 Days Prep/ 40 Days Analyze <sup>d</sup>
SVOCs	50 grams	Cool to 4°C	Glass Jar <sup>e</sup>	14 Days Prep/ 40 Days Analyze <sup>d</sup>
Polychlorinated Biphenyls (PCBs) <sup>f</sup>	50 grams	Cool to 4°C	Glass Jar <sup>e</sup>	14 Days Prep/ 40 Days Analyze <sup>d</sup>
Metals	10 grams	Cool to 4°C	Plastic Jar <sup>g</sup>	180 Days <sup>h</sup>

<sup>a</sup> Quantity may be increased or decreased according to the requirements of the analytical laboratory, as long as the QAOs are met.

<sup>b</sup> Holding time begins at sample collection (holding times are consistent with SW-846 requirements).

<sup>c</sup> 40-ml VOA vial or other appropriate containers shall have an airtight cap.

<sup>d</sup> 40-day holding time allowable only for methanol extract - 14-day holding time for non-extracted VOCs.

<sup>e</sup> Appropriate containers should be used and should have Teflon® lined caps.

<sup>f</sup> ~~Analysis for PCBs is required only for waste streams in Waste Matrix Code S3220 (organics sludges).~~

<sup>g</sup> Polyethylene or polypropylene preferred, glass jar is allowable.

<sup>h</sup> Holding time for mercury analysis is 28 days.

Note: Preservation requirements in the most recent version of SW-846 may be used if appropriate.

d.1 Table B3-6 Semi-Volatile Organic Compound Target Analyte List and Quality Assurance Directives

**TABLE B3-6  
SEMI-VOLATILE ORGANIC COMPOUND TARGET ANALYTE LIST  
AND QUALITY ASSURANCE OBJECTIVES**

Compound	CAS Number	Precision <sup>a</sup> (%RSD or RPD)	Accuracy <sup>a</sup> (%R)	MDL <sup>b</sup> (mg/kg)	PRQL <sup>b</sup> (mg/kg)	Completeness (%)
Cresols	1319-77-3	≤50	25-115	5	40	90
1,4-Dichlorobenzene <sup>bc</sup>	106-46-7	≤86	20-124	5	40	90
ortho-Dichlorobenzene <sup>c</sup>	95-50-1	≤64	32-129	5	40	90
2,4-Dinitrophenol	51-28-5	≤119	D-172 <sup>ed</sup>	5	40	90
2,4-Dinitrotoluene	121-14-2	≤46	39-139	0.3	2.6	90
Hexachlorobenzene	118-74-1	≤319	D-152 <sup>ed</sup>	0.3	2.6	90
Hexachloroethane	67-72-1	≤44	40-113	5	40	90
Nitrobenzene	98-95-3	≤72	35-180	5	40	90
Polychlorinated Biphenyls						
Aroclor 1016 <sup>d</sup>	12674-11-2	≤33	50-114	5	40	90
Aroclor 1221 <sup>d</sup>	11104-28-2	≤110	15-178	5	40	90
Aroclor 1232 <sup>d</sup>	11141-16-5	≤128	10-215	5	40	90
Aroclor 1242 <sup>d</sup>	53469-21-9	≤49	39-150	5	40	90
Aroclor 1248 <sup>d</sup>	12672-29-6	≤55	38-158	5	40	90
Aroclor 1254 <sup>d</sup>	11097-69-1	≤62	29-131	5	40	90
Aroclor 1260 <sup>d</sup>	11096-82-5	≤56	8-127	5	40	90
Pentachlorophenol	87-86-5	≤128	14-176	5	40	90
Pyridine <sup>c</sup>	110-86-1	≤50	25-115	5	40	90

CAS = Chemical Abstract Service

%RSD = Percent relative standard deviation

RPD = Relative percent difference

%R = Percent recovery

MDL = Method detection limit (maximum permissible value) (milligrams per kilogram)

PRQL = Program required quantitation limit; calculated from the toxicity characteristic level for nitrobenzene assuming a 100-gram (g) sample, 0.5 gal (2 liter [L]) of extraction fluid, and 100 percent analyte extraction (milligrams per kilograms)

<sup>a</sup> Applies to laboratory control samples and laboratory matrix spikes. If a solid laboratory control sample material which has established statistical control limits is used, then the established control limits for that material should be used for accuracy requirements.

<sup>b</sup> TCLP MDL and PRQL values are reported in units of mg/l and limits are reduced by a factor of 20.

<sup>c</sup> Can also be analyzed as a volatile organic compound

<sup>d</sup> Required only for waste matrix code S3220 (organic sludges)

<sup>e</sup> -Detected; result must be greater than zero

e.1.Table B6-1

12	<p>Are procedures in place to ensure that the generator/storage site ensures, through administrative and operational procedures and characterization techniques, that waste containers do not include the following unacceptable waste:</p> <ul style="list-style-type: none"> <li>• liquid waste (waste shall contain as little residual liquid as is reasonably achievable by pouring, pumping and/or aspirating, and internal containers shall contain less than 1 inch or 2.5 centimeters of liquid in the bottom of the container. Total residual liquid in any payload container may not exceed 1 percent volume of that container. Payload containers with U134 waste shall have no detectable liquid)</li> <li>• non-radionuclide pyrophoric materials</li> <li>• hazardous wastes not occurring as co-contaminants with TRU wastes (non-mixed hazardous wastes)</li> <li>• wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes</li> <li>• wastes containing explosives or compressed gases (continued below)</li> </ul>
12a	<ul style="list-style-type: none"> <li>• wastes with polychlorinated biphenyls (PCBs) <u>not authorized under an EPA disposal authorization</u> <del>concentrations equal to or greater than 50 parts per million</del></li> <li>• wastes exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)</li> <li>• RH TRU mixed waste (waste with a surface dose rate of 200 millirem per hour or greater)</li> <li>• any waste container that does not have VOC concentration values reported for the headspace</li> <li>• any waste container which has not undergone either radiographic or visual examination</li> <li>• any waste container from a waste stream which has not been preceded by an appropriate, certified Waste Stream Profile Form (see Section B-1d)</li> </ul> <p>(Section B-1c)</p>
24	<p>Are procedures in place to ensure that total analyses or TCLP of PCBs, VOCs, SVOCs, and Metals are performed on all core samples to determine if the waste exhibits a toxicity characteristic? (Section B-3a(2))</p>

e.2. Table B6-2

88	Are procedures in place to ensure that SVOC, <u>and</u> Metals, <del>and PCB</del> sample location(s) on the core are selected randomly along the long axis of the core and that the sample locations are documented, or that samples are collected at the same locations as VOC samples? Samples may be collected by splitting or compositing the representative subsection of the core. The representative subsections are chosen by randomly selecting a location along the portion of the core from which the sample was taken. (Section B1-2a(2))
89	Are procedures in place to ensure that the SVOC, <u>and</u> Metals, <del>and PCB</del> samples are collected using equipment constructed of materials unlikely to affect the composition or concentrations of the samples? (Section B1-2a(2))
91	<p>Are procedures in place to ensure sample volumes, preservatives, containers, and holding times meet the following specifications:</p> <p style="text-align: center;"><b>Minimum sample quantity</b></p> <p>VOC      15 grams  SVOC      50 grams  <del>PCB      50 grams</del>  Metals    10 grams  (smaller sample sizes may be used if method PRQL requirements are met)</p> <p style="text-align: center;"><b>Preservative</b></p> <p>VOC      Cool to 4C  SVOC      Cool to 4C  <del>PCB      Cool to 4C</del>  Metals    Cool to 4C</p> <p style="text-align: center;"><b>Sample Container</b></p> <p>VOC      40 mL VOA glass vial (or other appropriate containers) with septum cap  SVOC      250 mL amber glass jar with Teflon© lined cap  <del>PCB      250 mL amber glass jar with Teflon© lined cap</del>  Metals    250 mL polyethylene or polypropylene bottle</p> <p style="text-align: center;"><b>Holding Time from Date of Collection</b></p> <p>VOC      14 days prep/40 days analyze  SVOC      14 days prep/40 days analyze  <del>PCB      14 days prep/40 days analyze</del>  Metals    180 days/ 28 days Hg</p> <p>(Table B1-4)</p>



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

**MAY 15 2003**

**CERTIFIED MAIL- RETURN RECEIPT REQUESTED**

Dr. Inés R. Triay  
Manager  
Carlsbad Field Office  
U.S. Department of Energy  
Carlsbad, NM 88221

Dear Dr. Triay:

The United States Environmental Protection Agency (EPA), Region 6 is in receipt of your application of March 22, 2002, in which the Waste Isolation Pilot Plant (WIPP) seeks approval for land disposal of non-liquid polychlorinated biphenyls (PCBs) contaminated with transuranic waste (PCB/TRU) and PCB/TRU waste mixed with hazardous waste pursuant to 40 C.F.R. § 761.75 (Chemical waste landfills). The WIPP is currently permitted by the New Mexico Environment Department (NMED) pursuant to the Resource Conservation and Recovery Act (RCRA) as a Subpart X Miscellaneous Unit (40 C.F.R. § 264.600). After reviewing your application and an evaluation of the WIPP, EPA hereby approves your request to dispose of TRU and TRU-mixed waste containing PCBs pursuant to Section 761.75 subject to this letter and the enclosed "Conditions of Approval." The EPA has determined that the operation of this facility in accordance with the enclosed "Conditions of Approval" will not present an unreasonable risk of injury from PCBs to human health or the environment.

The WIPP application was evaluated against the technical requirements for a PCB chemical waste landfill in 40 C.F.R. § 761.75(b). The WIPP disposal area is located in a thick, relatively impermeable formation of salt known as the Salado Formation which consists mainly of halite and anhydrite. Hydraulic testing performed in halite indicates this salt formation permeability is below the required permeability value of  $1 \times 10^{-7}$  cm/sec in Section 761.75(b)(1)(ii) for soils lining a chemical waste landfill. The WIPP site is approximately 400 feet above the 100-year flood plain. Protection from flooding or ponding caused by probable maximum precipitation events is provided by the diversion of water away from the WIPP facility by a system of peripheral interceptor diversions. Additionally, grade elevations of roads and surface facilities are designed so that storm water will not collect on the site under the most severe conditions. The site is in a stable geological area where severe earthquakes or volcanic eruptions are highly unlikely and the location of the WIPP disposal area itself prevents erosion or landslides.

As part of the WIPP's application for land disposal of PCB Items, EPA also evaluated a request by the WIPP for a waiver from three of the technical requirements in Section 761.75(b) of TSCA. Pursuant to Section 761.75(c)(4), EPA may determine that the operation of a PCB chemical waste landfill will not present an unreasonable risk of injury to health or the environment from PCBs when one or more of the technical requirements are waived. The waiver requests are based upon the unique geologic and hydrologic conditions at the site, and the fact that the disposal panels are over 2,000 feet below the ground surface and isolated from any potential surface water infiltration. As such, WIPP requested waivers from certain requirements that related to soil based landfills in regard to site hydrology, monitoring systems, and leachate collection systems.

There are several aspects of the WIPP's salt bed formation design which are unique to this facility that do not apply to the PCB chemical waste landfill technical requirements for soil based landfills listed in Section 761.75(b). Therefore, EPA has reviewed the waiver request and determined that the hydrologic condition requirement in Section 761.75(b)(3), the monitoring systems requirements in Section 761.75(b)(6), and the leachate collection system requirement in Section 761.75(b)(7) are not necessary for the safe operation of the WIPP landfill. Accordingly, the request for a waiver from each of the aforementioned requirements is approved and a discussion follows.

#### **1. Hydrologic Conditions:**

a. Regulatory requirement: The PCB regulations at Section 761.75(b)(3) require that the bottom of the landfill be at least fifty feet above the historical high groundwater table, and that there be no hydraulic connection between the site and standing or flowing surface water.

b. Reason for granting waiver request: The WIPP repository is located in the Salado Formation salt beds over 2,000 feet below the ground surface, and is well isolated from any potential surface water infiltration from incident precipitation. Three ground water bearing zones were identified in the WIPP Compliance Certification Application and the RCRA permit application that demonstrated these water-bearing zones are isolated from the salt bed formations chosen for PCB disposal. Since the intent of the regulations are met, this waiver request is hereby granted.

#### **2. Monitoring Systems:**

a. Regulatory requirement: The regulations at Section 761.75(b)(6) require that a facility sample any surface or groundwater for PCBs as baseline data, and then monitor any surface or groundwater designated by EPA for PCBs.

b. Reason for granting the waiver request: Baseline surface and groundwater sampling for PCBs at the site did not detect any PCBs. There are no major surface-water bodies within five miles of the site, and the nearest river, the Pecos River, is approximately 15 miles from the site. The site is approximately 500 feet above the riverbed, and 400 feet above the 100-year flood plain. Surface grading provides for diversion of water from the site in case of incident precipitation events. Repository shafts are elevated at least six inches to prevent surface water from entering the shafts. In addition, there is no hydraulic connection between the repository and the groundwater. Since the design of the facility and the 2,000 foot depth of the disposal cell in salt bed formations meets the intent of the PCB landfill regulations which is to prevent contact between the disposed PCBs and surface or groundwater, this waiver request is hereby granted.

### 3. Leachate Collection:

a. Regulatory requirement: The regulations at Section 761.75(b)(7) require that a leachate collection system be installed above the chemical waste landfill in order to collect ground or surface water to prevent it from entering into the disposal cell.

b. Reason for granting the waiver request: The site is approximately 500 feet above the riverbed, and 400 feet above the 100-year flood plain. Surface grading provides for diversion of water from the site in case of incident precipitation events. Repository shafts are elevated at least six inches to prevent surface water from entering the shafts. The 2,000 foot depth of the disposal cells isolates the PCB waste from surface or groundwater contact or the production of leachate. The proposed PCB landfill does not include the disposal of free-flowing PCB liquids. Since the aforementioned meets the intent of the PCB landfill regulations to prevent contact between the disposed PCBs and surface or groundwater, this waiver request is hereby granted.

In addition to the request for approval for land disposal of PCB/TRU and PCB/TRU mixed waste at the existing WIPP facility, the WIPP also asked for conditional approval for several planned future facility modifications including:

1. the storage and disposal of Remote Handled (RH) PCB/TRU and PCB/TRU mixed waste;
2. the establishment of a central confirmation facility at WIPP for waste sample analysis; and
3. an increase in the maximum storage capacity allowed in the approved storage areas, and approval of additional PCB/TRU and PCB/TRU mixed waste storage areas to facilitate safe handling.

Approval of the planned facility modifications are not included in this approval action. The EPA will consider requests for approval of any future completed projects as modifications to this approval after review and consultation with the NMED. That process would also provide for public participation.

This approval shall become effective on the date of this letter, and expire at midnight, the same day and month, five years later. Applications for renewal should be submitted at least one year before the expiration date. If you have questions, please contact Mr. James Sales of my staff at (214) 665-6796.

Sincerely yours,



Carl E. Edlund, P.E.

Director

Multimedia Planning and  
Permitting Division

Enclosure

cc: Charles Lundstrom, NMED  
Betsy Forimash, ORIA  
Dr. Steven Warren, Washington TRU Solutions, L.L.C.



**CONDITIONS OF APPROVAL  
FOR  
DISPOSAL OF PCB/TRU AND PCB/TRU MIXED WASTE  
AT THE  
U.S. DEPARTMENT OF ENERGY (DOE)  
WASTE ISOLATION PILOT PLANT (WIPP)  
CARLSBAD, NEW MEXICO**

The disposal of transuranic waste by the DOE is congressionally mandated in Public Law 102-579 (as amended by the National Defense Authorization Act for Fiscal Year 1997, Public Law 104-201, referred to as the WIPP Land Withdrawal Act [LWA]). Portions of the transuranic waste inventory contain hazardous waste constituents regulated in 40 C.F.R. Parts 260 through 279, and/or polychlorinated biphenyls (PCBs) and PCB Items regulated in 40 C.F.R. Part 761. The following conditions of approval address the safe disposal of transuranic PCB and PCB Items at the WIPP.

The terms and abbreviations in these conditions are in accordance with those defined in 40 C.F.R. § 761.3 unless otherwise noted. The term "Facility" hereinafter refers to the Waste Isolation Pilot Plant (WIPP), Carlsbad, New Mexico. The term "owner" refers to the DOE, and the term "operator" refers to DOE and Washington TRU Solutions, L.L.C. The DOE owns the WIPP and is responsible for the development and day-to-day management of the WIPP facility.

**I. LOCATION OF FACILITY**

The Facility is located approximately 26 miles southeast of Carlsbad, New Mexico in Eddy County. The geographic coordinates are 32 degrees, 22 minutes, 30 seconds N; 103 degrees, 47 minutes, 30 seconds W.

**II. PCB WASTE AND DISPOSAL UNITS AUTHORIZED**

**A. PCB WASTE AUTHORIZED**

1. PCB contaminated transuranic (PCB/TRU), and PCB contaminated transuranic waste mixed with a hazardous waste (PCB/TRU mixed waste) including PCB remediation waste, PCB Articles, and PCB bulk product waste may be stored and disposed at this Facility. The terms "PCB/TRU" and "PCB/TRU mixed waste" are terms used by the Facility. For the purpose of this approval, PCB/TRU and PCB/TRU mixed waste shall be considered a "PCB Item(s)" in accordance with 40 C.F.R. § 761.3.

The Facility term "TRU waste" means waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years, except for (A) high-level radioactive waste; (B) waste that the DOE Secretary has determined, with the concurrence of the EPA Administrator, does not need the degree of isolation required by the disposal regulations; or (C)

waste that the Nuclear Regulatory Commission (NRC) has approved for disposal on a case-by-case basis in accordance with 10 C.F.R. Part 61.

The Facility term "TRU mixed waste" means TRU waste that is also a hazardous waste as defined by the Hazardous Waste Act and 20 New Mexico Administrative Code (NMAC) 20.4.1.200 (incorporating 40 C.F.R. § 261.3).

The term "PCB/TRU waste" shall hereinafter refer to both PCB/TRU and PCB/TRU mixed waste.

2. The disposal of free-flowing PCB liquids are prohibited at this Facility.
3. No ignitable waste as defined by 40 C.F.R. § 261.21 may be received at this Facility.

#### **B. PCB DISPOSAL UNITS AUTHORIZED**

1. Disposal Panels 2 and 3 are authorized for disposal of PCB/TRU waste.
2. Before the Facility can dispose of any PCB/TRU waste in Panel 3, it must notify EPA when it has completed construction of Panel 3 and confirm that it has been constructed in accordance with approved plans and specifications.

#### **C. AUTHORIZATION TO OPERATE ADDITIONAL DISPOSAL UNITS**

For a new Panel, the owner/operator may not commence disposal until the Facility has notified in writing the EPA Region 6 OK/TX RCRA Permits Section and received a written approval authorizing the new Panel for PCB disposal. The notification must include a description and a map of the new Panel. The description must include anticipated depth, length, and width of the new Panel and how it will be operated.

#### **D. EXPANSION IN SIZE OR CAPACITY OF AUTHORIZED DISPOSAL UNITS**

Any existing Facility modification or expansion in capacity from what was proposed in the PCB application of March 22, 2002, requires notification and response from EPA according to the procedures outlined in II. C. of these conditions.

### **III. PCB/TRU WASTE STORAGE**

#### **A. AUTHORIZED STORAGE AREAS**

PCB/TRU waste storage is limited to the following areas:

1. The Parking Area Container Storage Unit consisting of a 115,000 square foot asphalt and concrete surface providing storage space for loaded Department of Transportation (DOT) Type B Packages with up to 1,591 cubic feet of waste, and
2. The Waste Handling Building (WHB) Container Storage Unit consisting of 33,175 square feet of storage area for PCB/TRU waste management and provides for storage of up to 2,718 cubic feet of waste.

#### **B. AUTHORIZATION TO OPERATE ADDITIONAL STORAGE AREAS**

For a new PCB/TRU storage area, the owner/operator may not commence storage of PCBs until the Facility has notified in writing the EPA Region 6 OK/TX RCRA Permits Section and received a written approval authorizing the new storage area. The notification must include a description and storage capacity of the proposed new area.

#### **C. EXPANSION IN SIZE OR CAPACITY OF AUTHORIZED STORAGE AREAS**

Any existing storage area modification or expansion in capacity over and above what is authorized in this approval requires notification and response from EPA according to the procedures outlined in III. B. of these conditions.

#### **D. GENERAL PCB/TRU STORAGE REQUIREMENTS**

1. Storage of PCB/TRU waste must comply with 40 C.F.R. § 761.65(c)(5) and (c)(6) (Storage for disposal), and TSCA Compliance Program Policy No. 6-PCB-6.
2. The PCB/TRU waste must be received in sealed DOT Type B Package containers.
3. All PCB containing DOT Type B Packages, transport vehicles, and storage areas must be properly marked in accordance with 40 C.F.R. § 761.40.
4. All PCB Items must be identified in the WIPP Waste Information System to show the date of waste certification for disposal. This electronic database must show the date a PCB Item was removed from service for disposal and the date the PCB Item was sent to the Facility for disposal. This information must be provided to EPA upon request.
5. The Facility may store PCB Items for up to 60 days in the approved storage areas listed in condition III. A. above.

**E. PCB/TRU STORAGE AREA OPERATING REQUIREMENTS**

1. If manifest discrepancies are noted, the PCB Items must be placed either in a storage area of the WHB on a Facility pallet, or inside an approved DOT Type B Package and placed either in the WHB or Parking Area Unit.
2. Adequate aisle space must be maintained in all WHB Unit PCB/TRU waste storage areas to allow unobstructed movement of fire-fighting personnel, spill-control equipment, and decontamination equipment.
3. Waste containers may not be stacked more than two containers high in the approved storage areas, and not more than three containers high in the disposal Panels.

**IV. PCB/TRU DISPOSAL REQUIREMENTS**

**A. GENERAL OPERATING REQUIREMENTS**

The handling and disposal of PCB/TRU waste must comply with the applicable portions of 40 C.F.R. Part 761 except where waivers or exemptions have been granted either through regulation, this approval, or in writing by EPA.

**B. PCB/TRU DISPOSAL OPERATING REQUIREMENTS**

1. PCB/TRU waste must be received into the WHB through one of the three air-lock entries.
2. PCB/TRU waste must only be transported underground through the "waste shaft" vertical transport shaft from the WHB, and placed in the designated disposal Panel using standard procedures as defined in the Hazardous Waste Facility Permit (HWFP).
3. Waste volumes in Panel 2 and Panel 3 must not exceed 636,000 cubic feet, or 86,500 55-gallon drum equivalents in each Panel.
4. All PCB/TRU waste shipments that are not sampled must be considered to contain a PCB concentration greater than 500 parts per million (ppm).
5. PCB/TRU waste disposal records and reports must be prepared and maintained in accordance with the regulations appropriate to the Facility pursuant to Part 761, Subpart K (PCB Waste Disposal Records and Reports).
6. Management and disposal of PCB/TRU waste at the Facility must be consistent with the disposal operations for TRU mixed waste as defined by

Modules I, II, III, and IV of the effective HWFP issued by the New Mexico Environment Department (NMED) pursuant to 20.4.1.500 NMAC incorporating 40 C.F.R. § 264.600, Subpart X (Miscellaneous Units) of the Resource Conservation and Recovery Act (RCRA).

## **V. CLOSURE AND POST-CLOSURE CARE**

### **A. CLOSURE PLAN REQUIREMENTS**

1. The owner/operator must comply with the Closure Plan requirements pursuant to 40 C.F.R. § 761.65(d)(3)(viii).
2. Closure must comply with requirements for closure as specified by the HWFP issued by the NMED.

### **B. NOTICE OF CLOSURE**

The owner/operator must notify the EPA Region 6 OK/TX RCRA Permits Section 30-days before closure of a disposal Panel is to begin along with any proposed changes to the closure plan.

### **C. POST-CLOSURE CARE**

1. Records required under 40 C.F.R. § 761.180(d) and (f) must be maintained for the times specified for closed disposal Panels.
2. Post-closure care of closed panels must comply with the requirements of the effective HWFP issued by the NMED.

## **VI. STANDARD APPROVAL CONDITIONS**

### **A. SEVERABILITY**

The conditions of this authorization are severable, and if any provision of this authorization, or any application of any provision, is held invalid, the remainder of this authorization shall not be affected thereby.

### **B. DUTY TO COMPLY**

The owner/operator must comply with all Federal, State, and local regulations, approvals, and permits including the effective HWFP issued by the NMED.

**C. PERSONNEL SAFETY**

The Facility personnel safety requirements and procedures for PCB handling, storage, transport, and disposal must comply with OSHA requirements.

**D. DUTY TO MITIGATE**

The owner/operator must correct any adverse impact on the environment resulting from noncompliance with this approval.

**E. OPERATION AND MAINTENANCE**

1. The owner/operator must at all times properly operate and maintain all systems of treatment and control (and related appurtenances) which are installed and used to achieve compliance with these Conditions of Approval. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures.
2. The owner/operator must provide training for employees that handle, transport, store, and/or dispose of PCB TRU waste. Training must include the kind described in Attachment H of the HWFP from the NMED as modified to include PCBs, the General Employee Training (GET) course as modified to include PCBs, and the Hazardous Waste Worker and Hazardous Waste Responder training as modified to include PCBs.

**F. TRANSPORT**

1. All transport vehicles owned or contracted by the owner/operator used for the transport of PCBs must be properly maintained, inspected, and certified in writing by a responsible official as meeting applicable safety standards under the DOT regulations before PCBs are transported on public highways. Copies of all safety certifications must be kept by the Facility or by the contracted carrier, and shall be available to EPA for review upon request. Transporters of PCB waste must notify EPA of their PCB waste activities by filing EPA Form 7710-53, "Notification of PCB Activity," prior to engaging in PCB waste handling activities.
2. All PCB waste must be shipped in DOT Type B Packages licensed by the Nuclear Regulatory Commission (NRC) with various configurations of containers meeting the DOT Type A drums and containers or other containers authorized by the NRC packaging Certificate of Compliance.

#### **G. DUTY TO PROVIDE INFORMATION**

1. The owner/operator must provide any relevant information which EPA may request to determine whether cause exists for modifying, revoking, reissuing, or terminating this approval, or to determine compliance with this approval.
2. Upon request, the owner/operator must provide copies of records required to be prepared and maintained by the TSCA PCB regulations at this Facility.

#### **H. INSPECTION AND ENTRY**

The owner/operator must allow an authorized representative, including contractors of EPA, upon presentation of credentials and/or other documents as may be required by law, to:

1. enter the Facility where PCBs are being handled, stored, or disposed,
2. have access to and copy, at reasonable times, any records that must be prepared and maintained by the TSCA PCB regulations or these Conditions of Approval,
3. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations required under these Conditions of Approval or the TSCA PCB regulations, and
4. sample or monitor for the purpose of assuring that the Facility is operating in compliance with these Conditions of the Approval or the TSCA PCB regulations.

#### **I. MONITORING AND RECORDS**

1. All PCB records, documents, and reports required to be prepared and maintained by these Conditions of Approval and the PCB regulations must be maintained at the Facility, and must be made available for inspection by authorized EPA representatives.
2. The owner/operator must maintain records of PCB/TRU waste in accordance with 40 C.F.R. § 761.180(b).
3. Facility operating records of PCB/TRU waste disposal must be maintained as defined in the WIPP HWFP Module I.I. and IV.H.2. All records required by 40 C.F.R. Part 761 and this approval must be written in ink, typed, or put into electronic format. Any modification or correction of the records must be initialed and dated by the supervisor in charge.

**J. NOTICE OF TRANSFER OF OWNERSHIP**

The owner/operator must notify EPA at least thirty (30) days before transferring ownership of the Facility. The owner/operator must also submit to EPA at least thirty (30) days before such transfer a notarized affidavit signed by the transferee stating that the transferee shall abide by the terms of this approval.

**K. TWENTY-FOUR HOUR REPORTING OF NONCOMPLIANCE**

1. If at any time the owner/operator finds it is in non-compliance with these Conditions of Approval, and that non-compliance may pose a risk to human health or the environment, it must notify the EPA Region 6 OK/TX RCRA Permits Section by telephone within 24 hours, and must submit a written report within five (5) work days.
2. If at any time the owner/operator finds it is in non-compliance with these Conditions of Approval, and that non-compliance does not pose a risk to human health or the environment, it must notify the EPA Region 6 Toxics Enforcement Section by telephone or e-mail within 24 hours, and must submit a written report within five (5) work days. E-mail messages must confirm successful delivery by return e-mail.

**L. OTHER INFORMATION**

If the owner/operator finds that it has failed to submit any relevant facts in its application, or submitted incorrect information in any report to EPA, it must promptly submit such facts or information to the EPA Region 6 OK/TX RCRA Permits Section.

**M. EMERGENCY PROCEDURES**

1. The owner/operator must maintain an adequately trained onsite RCRA emergency coordinator to direct emergency procedures which could result from fires, explosions or releases of PCB containing waste at the Facility. The owner/operator must submit the name and qualifications of the emergency coordinator within sixty (60) days of the effective date of this approval.
2. The owner/operator must maintain in good working order any equipment required to deal with onsite emergencies.
3. The owner/operator must comply with the WIPP Contingency Plan included in Attachment F of the HWFP which describes detailed emergency response actions to incidents involving TRU waste as modified to include incidents involving PCB/TRU waste.



4. The owner/operator must provide emergency response training to its emergency response personnel as required by Attachment H of the Facility HWFP.

**N. SPILLS**

1. PCB spills occurring at the Facility or from any onsite transport vehicle, must be cleaned up according to the PCB Spill Cleanup Policy, 40 C.F.R. Part 761, Subpart G. Any PCB spills must be reported in accordance with Subpart G.
2. If spills cannot be cleaned up within the time required by the PCB Spill Cleanup Policy, the owner/operator must notify the EPA Region 6 Toxics Enforcement Section of the circumstance of the spill, the estimated time of cleanup, and a justification for the delay of the cleanup. The EPA may order cessation of PCB disposal at the Facility if spills are not cleaned up in accordance with the PCB Spill Cleanup Policy.

**O. DUTY TO NOTIFY**

The owner/operator must notify the EPA Region 6 OK/TX RCRA Permits Section in writing at least thirty (30) days prior to any planned physical or operational change related to PCB handling and disposal that may require modification of this approval.

**P. EFFECTIVE DATE**

This approval becomes effective on the date of the approval letter, and expires at midnight, the same day and month, five years after. Please re-apply for re-authorization at least 90-days before the expiration date.

**END OF APPROVAL CONDITIONS**